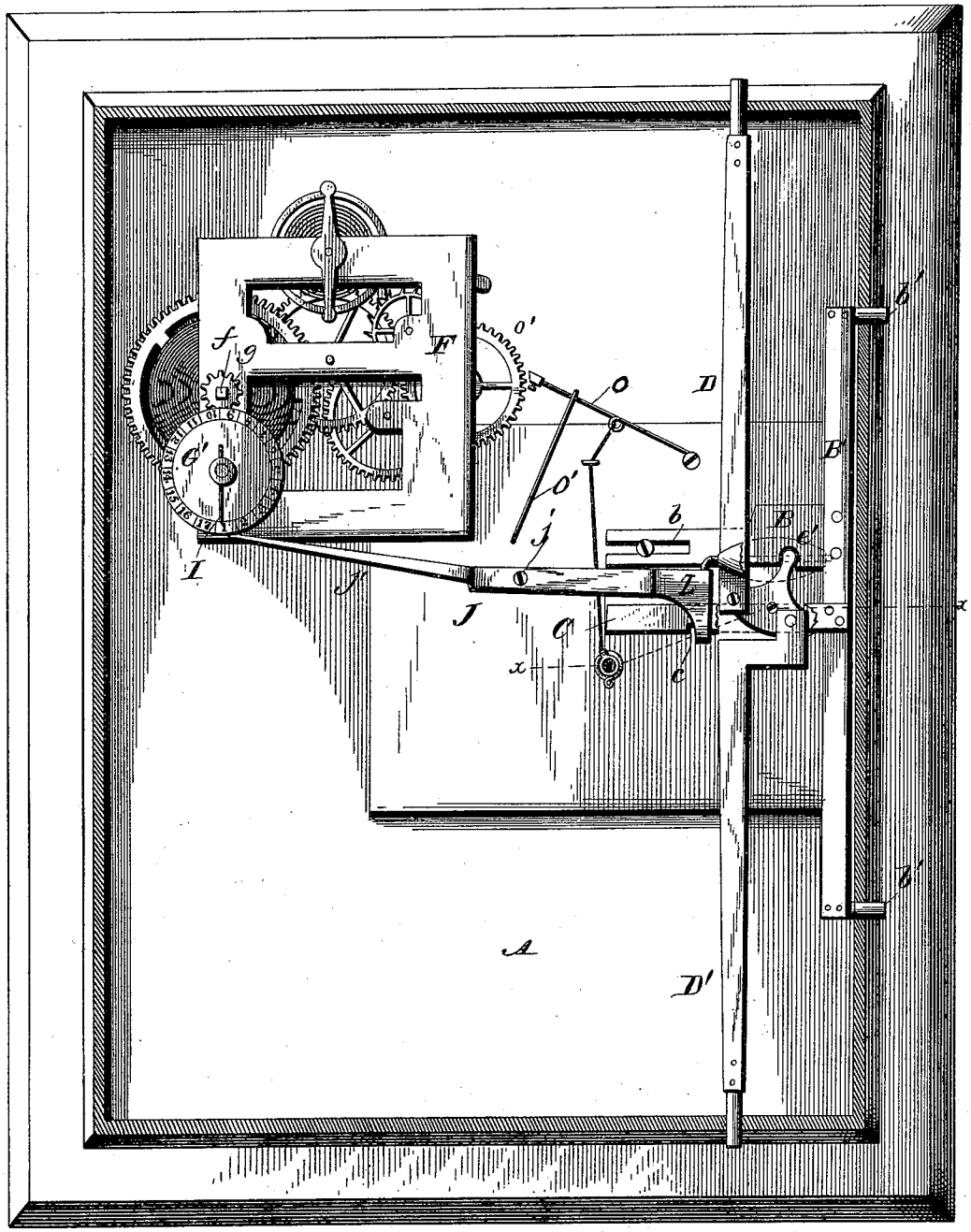
(Model.) 2 Sheets—Sheet 1.

G. P. WOODWORTH.

TIME LOCK.

No. 348,087. Patented Aug. 24, 1886.



WITNESSES

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Fig. 1.

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(Model.) 2 Sheets—Sheet 2.

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Fig. 2.

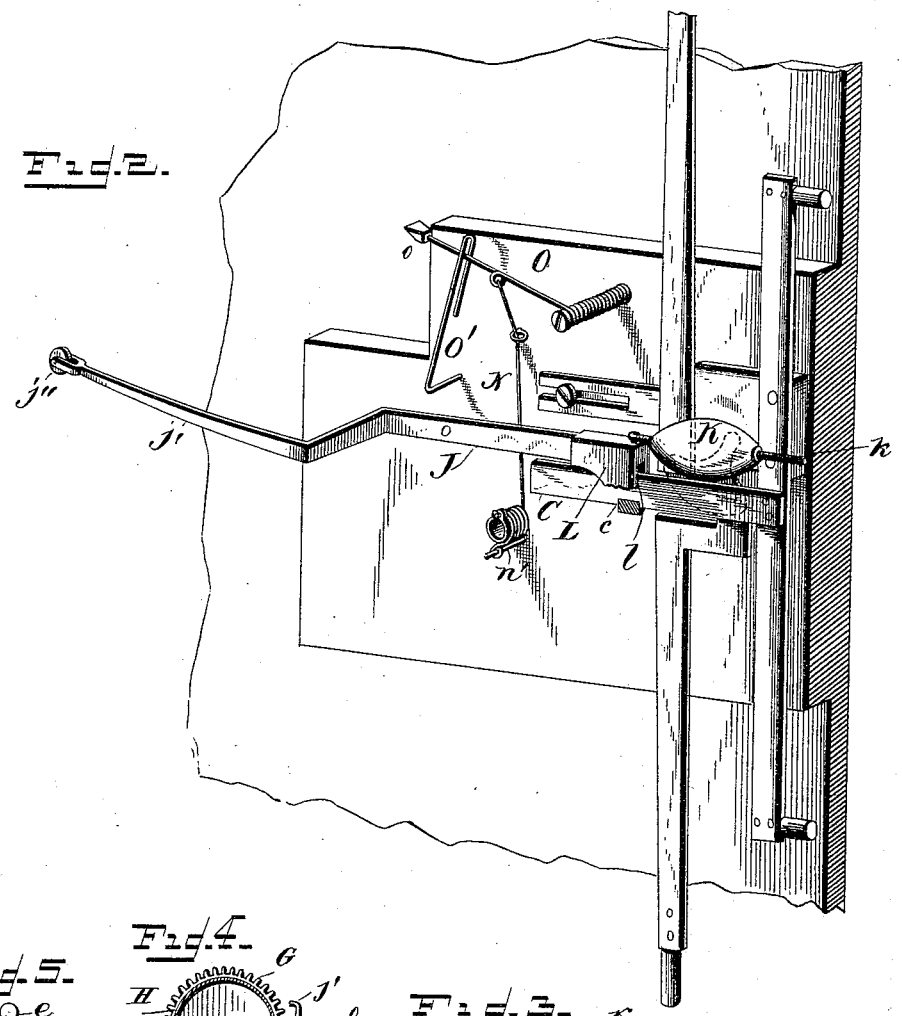


Fig. 5.

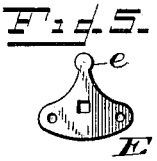


Fig. 4.

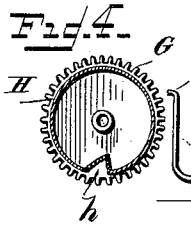
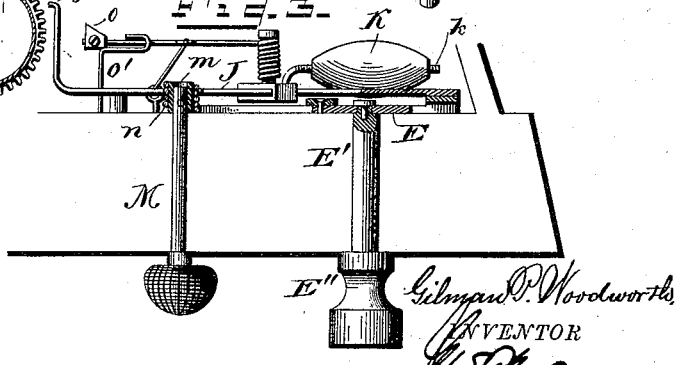


Fig. 3.



WITNESSES

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INVENTOR

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UNITED STATES PATENT OFFICE.

GILMAN P. WOODWORTH, OF COLFAX, IOWA.

TIME-LOCK.

SPECIFICATION forming part of Letters Patent No. 348,087, dated August 24, 1886.

Application filed May 13, 1886. Serial No. 202,063. (Model.)

To all whom it may concern:

Be it known that I, GILMAN P. WOODWORTH, a citizen of the United States of America, residing at Colfax, in the county of Jasper and State of Iowa, have invented certain new and useful Improvements in Time-Locks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to certain new and useful improvements in time-locks for safes, the object of the same being to provide a means whereby the bolts of a lock may be securely fastened, so that they cannot be shot until they are released at a premeditated time by the time mechanism; also, to provide the time mechanism with means whereby it may be started or stopped from the exterior of the safe without access being had to the interior thereof; and to this end my invention consists in the construction and combination of the parts, as will be hereinafter fully set forth, and specifically pointed out in the claims.

In the accompanying drawings which illustrate my invention, Figure 1 is a sectional view of a safe-door showing my improvement attached thereto. Fig. 2 is a sectional perspective view of the bolt-locking mechanism and starter for the time mechanism. Fig. 3 is a sectional view taken through the line *x x* of Fig. 1. Fig. 4 is a sectional view of the dial-plate, and Fig. 5 is a sectional view of the dog to which the vertical bolts of the lock are attached.

A refers to a safe-door of ordinary construction, to which, on its interior, a casing which contains ordinary lock mechanism, is attached. To the inner side of this casing a plate, B, is secured in the usual manner, the rear end of said plate being bifurcated or slotted, as shown at *b*, through which slot passes a guide-pin. The opposite end of this plate B is rigidly secured to a vertical bar, B′, which carries at its ends horizontal bolts *b′*, which pass through the door so as to engage with perforations therefor in the sides of the safe.

To the vertical bar B′ which carries the bolts *b′* is rigidly attached a horizontally-extending bar, C, said bar being provided on its lower edge at a suitable point with a recess, *c*, as will be hereinafter set forth.

The vertical bolt-bars D and D′ are attached at their inner ends to a dog, E, said dog having an upwardly-projecting portion, *e*, which engages with a recess, *e′*, in the plate B. The dog E is rigidly connected to a stem, E′, which may be geared to the combination-lock or mechanism, to be operated by a key, when such lock is employed; though, for the sake of simplicity, I have shown a knob, E″, attached directly to this stem for turning the dog and throwing the bolt mechanism when it is not locked by the time mechanism.

The arrangement of the bolt mechanism being old and well known forms no part of my invention.

F refers to the supporting-frame of the time mechanism, said time mechanism being substantially of ordinary construction, though the winding-arbor thereof, *f*, is provided with a pinion, *g*, which engages with a toothed wheel, G, which carries and has rigidly attached thereto a dial-plate, G′, said dial-plate being separated from the wheel G by a space, said dial-plate and toothed wheel being connected to each other by a web, H, which is provided with a notch or recess, *h*. The dial-plate is provided at its periphery with figures to which a stationary hand, I, points. In winding the time mechanism the dial G′ will be turned through the instrumentality of the pinion *g*, which is located on the winding-arbor.

J refers to a bar, which is pivotally attached at *j* to the lock-case, and is provided on one side of said pivot with an arm, *j′*, the end of which is bifurcated for the reception of a roller, *j″*, which bears against the web H. The opposite end of the bar J is provided with an outwardly-extended screw-threaded bar, *k*, which carries a counterpoise-weight, K, which normally bears this end of the bar J down, though it is held elevated by the pressure of the roller *j″* upon the web H adjacent to the dial. Near the end of the bar J is provided a block, L, having a slot or passage-way, *l*, through which the bar C of the bolt mechanism may pass, and when the end of said bar J, to which the block L is attached, is raised,

the lower portion of the block will engage with the recess *c*, so as to prevent the bolts being thrown.

In order to set the time mechanism so that the bolts can be thrown at a premeditated time the clock mechanism is wound by an ordinary key until the stationary hand I above the dial-plate points to the hour at which it may be desired to unlock the safe. When the safe-door is closed, the bolts are thrown, which can be done while the time mechanism is running, owing to a slight spring movement which the portion *j'* of the bar J will have. As soon as the bolts are thrown the lower portion of the block L will engage with the recess *c* in the bar C, and thus prevent the bolts being shot until the dial is turned, so that the roller *j''* will enter the recess *h* in the web H between the dial-plate G' and the gear-wheel G. It will be noted that the recess *h* has a straight-edged side and an inclined side, and that the roller *j''* will enter this inclined side until it reaches the straight wall, thereby providing a simple and effective means for stopping the time mechanism. It will be readily observed that it will require but slight pressure to stop the time mechanism, as said time mechanism will have almost run down before the roller engages with the straight edge of the recess. It will also be observed that the time mechanism is not wound hap-hazard, but the winding-key thereof is only turned sufficiently to bring the dial to the proper point for unlocking the safe, or, in other words, for instance, if the numeral 1 should be opposite the recess *h* and it would be desired to open the safe nine hours after closing, it would be necessary only to turn the winding-arbor so as to bring the figure 9 thereof opposite the dial, thus winding the time mechanism so as to run nine hours after the time mechanism is started, and placing said dial in such a position that the block or loop L will be allowed to fall, so as to release the bar C.

M refers to a spindle which extends through the safe-door and lock mechanism and is provided at its outer end with a knob, while a barrel, *m*, is attached to its inner end, said barrel being encircled by a spiral spring, *n*, which is attached thereto and to a pin, *n'*, which projects from the lock-case. A flexible connection, N, extends from this barrel, after being coiled around the same, to a spring-arm, O, the end of which plays between the bent ends of a guide-bar, O'. This spring-bar is provided at its end with an adjustable block, *o*, which can be adjusted so as to engage with the teeth of a gear-wheel, *o'*, of the time mechanism. Thus by turning the spindle M the spring-arm will be brought into engagement with the teeth or cogs of the wheel *o'*, so as to stop the time mechanism, and when it is desired to start said mechanism by simply turning the spindle in an opposite direction the spring-arm will be released, and the upward spring movement thereof will start the time-mechanism and release itself from engagement therefrom. Thus I provide a means for stopping the time mechanism from the exterior of the safe, and also a means for starting the same should it stop from many unforeseen causes. This starting and stopping mechanism may be applied to time-locks of ordinary construction.

I claim—

1. In a time-lock, the combination, with the bolt mechanism provided with a sliding bar, C, having a recess, *c*, the pivoted bar J, provided at one end with a loop through which passes the sliding bar, an adjustable counterpoise-weight attached to said loop, of the dial-plate G', and toothed wheel G, a web, H, rigidly connecting said parts and provided with a recess, *h*, with which the end of the bar engages, substantially as shown, and for the purpose set forth.

2. In a starting and stopping device for time-locks for safes, the combination, with the time mechanism, of a spring-bar, O, the free end of which is adapted to engage with one of the wheels of said mechanism, a rotary spindle, M, which extends through the door of the safe, and a flexible connection attached to said bar and spindle, whereby the time mechanism may be stopped and started from the exterior of the safe, substantially as shown, and for the purpose set forth.

3. In a time-lock mechanism for safes, the combination, with a dial-plate, G', and a toothed wheel, G, a web, H, rigidly connecting said parts and provided with a recess, a pinion attached to the winding-arbor of the time mechanism, of a pivoted bar, J, adapted to engage the web H, the opposite end of the bar J being provided with a loop, L, a sliding bar, C, with a recess, *c*, with which said loop engages, substantially as shown, and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

GILMAN P. WOODWORTH.

Witnesses:
W. W. BATES,
S. B. EWING.